

SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

FORM 10-KSB

Annual report Pursuant to Section 13 or 15(d) of the
Securities Exchange Act of 1934

For the fiscal year ended March 31, 1998

Transition Report Pursuant to Section 13 or 15(d) of the
Securities Exchange Act of 1934

For the transition period from
to

Commission File Number:
0-16106

APA Optics, Inc.

(exact name of registrant as
specified in its charter)

Minnesota 41-1347235
(State of Incorporation)
(I.R.S. Employer ID No.)

2950 N.E. 84th Lane, Blaine, MN
55449
(Address of principal executive offices)
(zip code)

Issuer's telephone number, including area code: (612) 784-4995

Securities registered pursuant to Section 12(b) of the Act:
None

Securities registered pursuant to Section 12(g) of the Act:

Common Stock, par value \$.01 per share
(Title of class)

Check whether the issuer (1) filed all reports required to be
filed by Section 13 or 15(d) of the Exchange Act during the
past 12 months and (2) has been subject to the filing
requirements for the past 90 days. Yes No

Check if there is no disclosure of delinquent filers in
response to item 405 of Regulation S-B in this form, and no
disclosure will be contained to the best of issuer's
knowledge, in definitive proxy or information statements
incorporated by reference in Part III of this Form 10-KSB. [
]

The issuer's revenues for its most recent fiscal year were
\$2,190,637.

The aggregate market value of the voting stock held by non-
affiliates of the registrant as of May 29, 1998, was
approximately \$34,946,074.

The shares of Common Stock outstanding as of May 29, 1998 were
8,512,274.

DOCUMENTS INCORPORATED BY REFERENCE

Portions of the annual report to shareholders for the fiscal
year ended March 31, 1998 (the "1998 Annual Report") , are
incorporated by reference into Part II. The Annual Report is
filed with this report as Exhibit 13.

Portions of the proxy statement for the annual shareholders
meeting to be held on August 19, 1998 ("Proxy Statement") are
incorporated by reference into Part III.

Part I

Item 1. Description of Business.

(a) General Development of Business.

APA Optics, Inc. manufactures and markets advanced
products for the fiber optic communications, optoelectronics
and laser industries, including wave-length division
multiplexed (WDM) components, ultraviolet (UV) detectors,
Nitride epitaxial layers and custom optics.

From its founding in 1979, the Company has focused on leading edge research in sophisticated optoelectronic and optical system areas with the primary goal of developing advanced products for subsequent marketing and fabrication. APA Optics, Inc. currently manufactures WDM optical modulator components, offers a range of Gallium Nitride-based devices and services, and markets custom optics products.

(b) Description of Business.

Products and Services

(i) Optical Lens Systems. The Company designs and builds multi-element lens systems and components, including mounting structures, for precision quality optical needs. Many applications such as laser industrial imaging systems and display systems require precision quality optics.

A lens is a transparent optical component, the surface of which converges or diverges the light transmitted through it to form a real or virtual image of an object. A lens system consists of two or more lenses and is generally required for photographic and laser devices, microscopes, and telescopes. The design of a lens system involves selection of suitable optical glass and a delicate balance of various radii of lenses, lens thickness, and separation between various lenses. To accomplish these tasks, the Company uses sophisticated computer design programs, some of which it has purchased and some of which have been internally developed.

The Company has designed and built lens systems for various applications. These applications include laser-based systems, imaging systems, inspection systems, display systems, display optics, focusing optics for ultraviolet fire alarms, alignment verification optics for dual magnetic recording heads, and multi-magnification optics systems for optical comparators.

(ii) Optical Thin Film Coatings. The Company custom designs, develops, and fabricates optical thin film coatings for optical components of lasers, laser systems, optical instruments, and optical devices.

The Company uses its optical thin film coating services in two major ways. Antireflective coatings are deposited onto fabricated lens components. The Company also uses its thin film coating facility to design, develop and fabricate coating for lens components supplied by customers.

Applications for thin film coatings services are concentrated primarily in optical components used in lasers and laser systems. The Company provides high quality coatings to meet the delicate demands required in these systems.

(iii) Optoelectronics Devices. The Company is focusing its research and development effort on several optoelectronic devices. Optoelectronic devices will be vital components of future communication systems and optical instruments. To foster development of fiber-optic high data rate communication systems, certain miniature lightweight modules, including amplifiers, switches, couplers, filters, and isolators, need to be created. These modules must then be integrated into microcircuit chips. Solving the problems of this technology is the current focus of the Company's development effort.

The Company is developing the following major optoelectronic devices:

Wavelength Divisional Multiplexed (WDM) Modulator. Recently, the Company demonstrated the feasibility of a WDM optical modulator capable of transmitting several channels through a single optical fiber for communication applications. APA Optics developed the optical modulator (single channel) technology during the early 90's for fiber optic communication. These modulators have the capability of direct high speed (several billion bits per second) data loading and unloading on laser beams going through optical fibers, either for short distance or long distance. The WDM consists of a Gallium Arsenide material chip (fabricated using conventional semiconductor processing techniques) on which both laser beams and electrical beams can travel independently or interact with each other. This device, therefore, provides an easy way of

mixing computer data, video or cable information (which are electrical in nature) with the laser beam going through the optical fiber. As a result, the modulator will be very valuable for fiber optic communication systems including Local Area Networks (LANs). The WDM optical modulator, developed recently, provides a major break-through in that information can travel on several different channels within a single fiber (A simple analogy is the expansion of a single lane highway to multi-lane thoroughway). As a result, the WDM due to its multiple channels provides: higher speed, increased and regulated data handling capabilities as compared to a single channel modulator.

The Company filed a patent for WDM optical modulator in June 1994, which was allowed on May 8, 1995. The Company is building three sets of WDM optical modulators for internal testing and characterization. The Company plans to build several prototype and pre-production sets prior to manufacturing of the WDM modulators.

UV Detector. The UV Detector is a high response solid state detector based on single-crystal gallium nitride. The GaN detector is expected to have applications in spectrometry, solar radiation measurement, excimer-laser measurement and calibration, biomedical instrumentation, and flame detection and monitoring. The detector is visible blind, which allows detection of UV radiation in the presence of room lights without a filter. The Company believes the GaN detector has advantages over photomultiplier tubes because of its ruggedness and chemical inertness, which suit it for application in high-vibration and harsh environments as well as high-temperature operation.

Other Products

The Company is performing contract research on at least two additional AlGaIn based devices, namely: a UV/blue laser and a transistor, which may form the basis for future products.

Major Customers

Revenues from sales and contract fees to the following unrelated customers constituted more than ten percent of the Company's total operating revenues in the last two fiscal years:

Year Ended March 31,

Name	1998	1997
Government Agencies *	89%	93%

*Represents services to several operating agencies of the U.S. Government, as follows:

	1998	1997
Air Force	20%	42%
Army	25	22
Navy	38	36
ARPA	17	0
Total	100%	100%

Backlog

The Company's backlog of uncompleted contracts at March 31, 1998, was approximately \$1,300,000, as compared to \$3,200,000 at March 31, 1997. Of the current year's backlog, all contracts will be completed within the next year.

Competition

Competition in the optics fabrication business is significant. Many of the companies engaged in the business are well-financed and have significantly greater research, development, production, and marketing resources than those of the Company. The Company believes that it has a competitive advantage in the important factors of quality and performance since it has a complete facility for the development, design, and fabrication of optical systems. Also, the geographical location of the Company gives it a competitive advantage in marketing its products to companies located in the Midwest, since most of the Company's competitors are located on the East and West Coasts.

There is also significant competition for research and development contracts for the development of optics technologies. Many potential competitors have significantly greater resources for product research and development than the Company. However, the Company believes that an early start in relatively new technologies will provide an edge in procuring various development contracts.

Research and Development

During the fiscal years ended March 31, 1998, and 1997 the Company spent approximately \$339,000 and \$375,000, respectively, on research and development sponsored by the Company. In addition, in each of those years, the Company spent approximately \$1,431,000, and \$1,610,000, respectively, on research activities sponsored by customers.

Employees

As of March 31, 1998, the Company employed 30 full-time employees (including its executive officers).

Item 2. Description of Property.

The Company's offices, manufacturing facilities, and laboratories are located in an industrial building at 2950 N.E. 84th Lane, Blaine, Minnesota. The Company currently leases 23,500 square feet of space in the building under sublease from Jain-Olsen Properties, a partnership consisting of Anil K. Jain and Kenneth A. Olsen, officers and directors of the Company. See Note 9 of Notes to Financial Statements in the 1998 Annual Report included as Exhibit 13 to this Report.

The Company completed this year a 24,000 square foot production facility in Aberdeen, South Dakota, which will be used for manufacturing the Company's new products. The land upon which this facility is located was granted to the Company as part of a financing package from the city of Aberdeen. See Note 5 of Notes to Financial Statements in the 1998 Annual Report included as Exhibit 13 to this Report for further information on the financing of this facility. (The Company also owns land directly west of the Blaine facility and may use it for future expansion.)

Item 3. Legal Proceedings.

On or about November 22, 1997, the Company commenced litigation in the Anoka County District Court (Minnesota) against two of its former employees, Asif Khan and Jinwei Yang, contending that the defendants are in breach of their respective confidentiality agreements and that APA is entitled to both damages and injunctive relief under the Uniform Trade Secrets Act. Both of the defendants were employed by the Company in the area of research and development of Gallium Nitride and are the subjects of a confidentiality agreement. APA's Motion for a Temporary Injunction was denied on February 19, 1998. Subsequently, the parties submitted to mediation and reached agreement on the terms of a settlement, subject to preparation and execution of appropriate documentation.

Item 4. Submission of Matters to a Vote of Security-Holders.

No matter was submitted to a vote of security holders during the fourth quarter of the fiscal year covered by this report.

PART II

Item 5. Market for Common Equity and Related Stockholder Matters.

"Common Stock Information" on page 8 of the 1998 Annual Report is incorporated herein by reference.

Item 6. Management's Discussion and Analysis or Plan of Operations.

"Management's Discussion and Analysis of Financial Condition and Results of Operations" on page 8 of the 1998 Annual Report is incorporated herein by reference.

Item 7. Financial Statements.

The financial statements included on pages 9-17 of the 1998 Annual Report are incorporated herein by reference.

Item 8. Changes in and Disagreements with Accountants on Accounting and Financial Disclosure.

None.

PART III

Item 9. Directors, Executive Officers, Promoters, and Control Persons; Compliance with Section 16(a) of the Exchange Act.

EXECUTIVE OFFICERS OF THE REGISTRANT

The following is a list of APA Optics, Inc. executive officers, their ages, positions and offices as of March 31, 1998.

Name	Age
Position	
Dr. Anil K. Jain	52
President & Treasurer	
Kenneth A. Olsen	54
Vice President and Secretary	
Randal J. Becker	45
Principal Accounting Officer	

BUSINESS EXPERIENCE

Dr. Anil K. Jain has been a Director and President and Treasurer since March 1979. From 1973 until October 15, 1983, when Dr. Jain commenced full time employment with the Company, he was employed at the Systems and Research Center at Honeywell Inc. as a Senior Research Fellow, coordinating optics-related development.

Kenneth A. Olsen has been a Director since 1980, Secretary since 1983, and Vice President since 1992. Prior to joining the Company, he had been with 3M Corp., St. Paul, Minnesota.

Randal Becker has been Principal Accounting Officer since joining the Company in 1987. Prior to joining the Company he was with Apache Corporation, Minneapolis, Minnesota.

Information regarding Directors is incorporated herein by reference from the Proxy Statement.

Item 10. Executive Compensation.

Item 11. Security Ownership of Certain Beneficial Owners and Management.

Item 12. Certain Relationships and Related Transactions.

The information requested by the above items 10, 11, and 12 is included in the Proxy Statement, which is incorporated herein by reference.

Item 13. Exhibits and Reports on Form 8-K.

(a) Exhibits: See Exhibit Index on Page 9

(b) Reports filed on Form 8-K:

No reports on Form 8-K were filed during the fourth quarter of the fiscal year ended March 31, 1998.

SIGNATURES

In accordance with Section 13 or 15(d) of the Exchange Act, the Registrant caused this report to be signed on its behalf by the undersigned, thereunto duly authorized.

APA Optics, Inc.

Date: 6/25/98 By
/s/s Anil K. Jain

Anil K. Jain, President

In accordance with the Exchange Act, this report has been signed below by the following persons on behalf of the Registrant and in the capacities and on the dates indicated.

/s/ Anil K. Jain
President, Chief
Anil K. Jain
Executive Officer,
treasurer, chief
financial officer,
and director

/s/ Kenneth A. Olsen
Secretary, Vice
Kenneth A. Olsen
President, and

6/25/98

director

/s/ Randal J. Becker
Principal
Randal J. Becker
accounting officer

6/25/98

/s/ Lincoln Hudson
Director
Lincoln Hudson

6/25/98

/s/ Gregory Von Wald
Director
Gregory Von Wald

6/25/98

EXHIBIT INDEX

Exhibit
Page Number or Incorporated
Number Description
by Reference to

3.1 Restated Articles
Exhibit 3.1 to Registrant's
of Incorporation, as amended
Report on Form 10-KSB for
to date, and Statement
the fiscal year ended March
regarding establishment of
31, 1995 (the "1995 10-KSB")
class of shares

3.2 Bylaws
Exhibit 3.2 to the
Registration statement on
Form S-18 filed with the
Chicago Regional Office of
the Securities and Exchange
Commission on June 26, 1986
(the "Registration
Statement")

4.1a First Restated and Amended
Exhibit 4.1a to
Loan Agreement by and between
Report on Form 10-K for the
the Minnesota Agricultural and
fiscal year ended March 31,
Economic Development Board
1991 ("1991 10-K")
(the "Board") and the
Registrant dated July 1, 1990

4.1b Security Agreement from the
Exhibit 4.1b to the 1991
Registrant to the Board dated
10-K
as of July 1, 1990

4.1c Registrant's Restated and
Exhibit 4.1c to the 1991
Amended Promissory Note in the
10-K
amount of \$1.5 million payable
to the Board

4.1d Intercreditor Agreement and
Exhibit 4.1d to the 1991
Consent by and among the

10-K

Board, the Registrant, and
other parties dated July 1,
1990

4.2(a) State of South Dakota Board of
Exhibit 4.1(a) to the
Economic Development \$300,000
Report on 10-QSB for
Promissory Note, REDI Loan: 95-13-A
the quarter ended June 30,
1996 (the "June 1996 10-QSB")

4.2(b) State of South Dakota Board of
Exhibit 4.1(b) to the June
Economic Development Security
1996 10-QSB
Agreement, REDI Loan No: 95-13-A
dated May 28, 1996

4.3(a) \$700,000 Loan Agreement dated June 24,
Exhibit 4.2(a) to the June
1996 by and between Aberdeen Development
1996 10-QSB
Corporation and APA Optics, Inc.

4.3(b) \$300,000 Loan Agreement dated June 24,
Exhibit 4.2(b) to the June
1996 between Aberdeen Development
1996 10-QSB
Corporation and APA Optics, Inc.

4.3(c) \$250,000 Loan Agreement dated June 24,
Exhibit 4.2 (c) to the June
1996 by and between Aberdeen Development
1996 10-QSB
Corporation and APA Optics, Inc.

4.3(d) \$300,000 Loan Agreement dated June 24
Exhibit 4.2(d) to the June
1996 by and between Aberdeen Development
1996 10-QSB
Corporation and APA Optics, Inc.

4.4(a) Loan Agreement between South Dakota
Exhibit 4.3(a) to the June
Economic Development Finance and
1996 10-QSB
APA Optics, Inc.

4.5(b) Mortgage and Security Agreement - One
Exhibit 4.3(b) to the June
Hundred Day Redemption from APA Optics,
1996 10-QSB
Inc. to South Dakota Economic Development
Finance Authority dated as of June 24, 1996

4.6(a) Subscription and Investment Representation
Exhibit 4.4(a) to the June
Agreement of NE Venture, Inc.
1996 10-QSB

4.6(b) Form of Common Stock Purchase Warrant
Exhibit 4.4(b) to the June
for NE Venture, Inc.
1996 10-QSB

10.1 Sublease Agreement between the
Exhibit 10.1 to the
Registrant and Jain-Olsen Properties and
Registration Statement
Sublease Amendment and Option Agreement
between the Registrant and
Jain-Olsen Properties

*10.2a Stock Option Plan for Nonemployee
Exhibit 10.3a to
Directors
Registrant's Report on Form

10-KSB for the fiscal year

ended March 31, 1994 (the

"1994 10-KSB")

*10.2b Form of option agreement issued
Exhibit 10.3b to 1994 10-KSB
under the plan

*10.3 1997 Stock Compensation Plan
Exhibit 10.3 Registrant's Report

on Form 10-KSB for the Fiscal
year ended March 31, 1997

*10.4 Insurance agreement by and
Exhibit 10.5 to Registrant's
Report on Form 10-K for
Anil K. Jain
the fiscal year ended March
31, 1990

*10.5 Form of Agreement regarding
Exhibit 10.1 to Registrant's
Repurchase of Stock upon change in
Report on Form 10-QSB for the
Control Event with Anil K. Jain and
quarter ended September 30, 1997
Kenneth A. Olsen
("September 1997 10-QSB")

*10.6 Form of Agreement regarding
Exhibit 10.2 to the September
Employment/Compensation upon Change
1997 10-QSB
in Control with Messrs. Jain and Olsen

13 Annual Report to Shareholders
Page 12 for year ended March 31, 1998

27 Financial data schedule
Page 32

* Indicates management contract or compensation plan or
arrangements required to be filed as an exhibit to this form.

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APA Optics, Inc. manufactures and markets advanced products for the fiber optic communications, optoelectronics and laser industries, including wavelength division multiplexed (WDM) components, ultraviolet (UV) detectors, Nitride epitaxial layers and custom optics.

From its founding in 1979, the Company has focused on leading edge research in sophisticated optoelectronic and optical system areas with the primary goal of developing advanced products for subsequent marketing and fabrication. APA Optics, Inc. currently manufactures WDM optical modulator components, offers a range of Gallium Nitride-based devices and services, and markets custom optics products.

APA Optics, Inc. has its headquarters in Blaine, Minnesota, a suburb of Minneapolis, and operates an optoelectronics manufacturing center in Aberdeen, South Dakota.

Forward-looking statements contained herein are made pursuant to the safe harbor provisions of the Private Litigation Reform Act of 1995. These statements are based upon the Company's current expectations and judgments about future developments in the Company's business. Certain important factors could have a material impact on the Company's performance, including, without limitation, delays in or increased costs of production, delays in or lower than anticipated sales of the Company's new products, and other factors discussed from time to time in the Company's filings with the Securities and Exchange Commission. Readers are cautioned not to place undue reliance on forward-looking statements. The Company undertakes no obligation to update such statements to reflect actual events.

1998...FORGING AHEAD ON THE MARCH TO MANUFACTURING

INTRODUCING PRODUCTS THAT PERFORM

APA Optics moved ahead forcefully in the 1998 fiscal year and achieved its goals of bringing to market exceptional products that are in the forefront of optoelectronics technology. This watershed in marketing is in line with the Company's commitment to become a leading player in product development and fabrication for the fiber optic communications, optoelectronics and laser industries.

Substantial forward steps were taken before the end of the fiscal year, March 31, 1998, and APA Optics is poised for continued progress, and growth, in sales and production. The achievements in fiscal 1998 encompass actions in the product development, manufacturing and marketing sectors.

Breakthroughs in Fiber Optic Communications

"Ultra" WDM technology was introduced at OFC '98, the international fiber communications conference, held this year in the Silicon Valley city of San Jose, and APA Optics is now receiving orders for its sophisticated multiplexer components. The conference drew leaders from the optoelectronics and fiber communications industries worldwide.

Dense Wavelength Division Multiplexing (DWDM) is taking the spotlight from wavelength division multiplexing among engineers in the fiber communications industry and APA Optics pushed the envelope further with its "ultra" DWDM technology. The "ultra" relates to channel spacing. The industry standard is 100 Gigahertz, but APA Optics has achieved 50 GHz spacing, a key technological consideration in developing WDM fiber optic communications networks, and has done so with low cross talk levels. (See DWDM discussion on page 4)

This advanced WDM technology attracted wide industry interest and prompted initial sales of demonstration units. APA Optics management expects these and other related products to make a significant contribution to APA's future success.

The fiber communications industry continues to see dramatic growth as the demand for telecommunications and data transfer expands year after year. There continue to be

new applications in communications services and Internet accessing that build the need for greater and greater capacity. Industry observers see WDM technology playing a role in boosting speed on the Internet and in expanding cable TV options.

New GaN Products and Sales

APA Optics is introducing a second offering in its Gallium Nitride (GaN) ultraviolet detector line, a product that is clearly superior to all competing entries in this Schottky detector category. This second APA detector is significantly improved, with performance that is 60 to 70 percent above the initial offering. The key is the capability of GaN to permit unprecedented levels of discrimination between ultraviolet light and sunlight. This "solar blind" characteristic helps create a UV-detector with exceptional value in flame sensing and other applications.

The Company has now sold Schottky UV-detector qualifying units to some 15 to 20 customers. With the new product and others to come, APA sees this area as a substantial contributor to sales and product fabrication demand.

APA Optics has a global reputation for its pioneering research on Nitride family minerals, materials that have great potential for application in the optoelectronic industry. Gallium Nitride is delivering important products today, but other Nitrides also offer great promise. (See Base Materials section on page 7)

Manufacturing Activities

Fabrication activity is underway at APA Optics' new manufacturing center in Aberdeen, South Dakota, and the facility is fulfilling its promise. Well staffed and well equipped, this optoelectronics plant is functioning smoothly and will be capable of handling substantial production demands.

During fiscal 1998, Randy Bender, a native of Aberdeen, was named manager of the APA Optics manufacturing center in the South Dakota community. Production of both WDM modulator components and UV-detectors is planned at the Aberdeen fabrication center.

The Fiscal 1998 Year

APA Optics reported a loss of \$967,767 on revenues of \$2,190,637 for the 1998 fiscal year, ended March 31, 1998.

"I am pleased by our financial performance during this transition from being solely a research organization to the role of manufacturer and marketer of advanced products," said Anil K. Jain, president and CEO of APA. "Getting fabrication activities rolling and introducing two major products in a transitional year, while incurring a loss of less than \$1 million, is an outstanding achievement."

Overall revenues for the Company in fiscal 1998 were down from the prior year, reflecting the Company's decision to reduce its contract research volume in favor of fabrication. At the same time, the Company experienced higher costs associated with the onset of manufacturing activity, as well as higher marketing expense.

APA OPTICS ENDED THE FISCAL YEAR IN A SOUND FINANCIAL POSITION, WITH A CASH BALANCE AT YEAR END OF \$5,184,215, COMPARED TO \$3,875,205 AT THE END OF THE 1997 FISCAL YEAR.

A LETTER TO SHAREHOLDERS

I am pleased to report that after several years of strategic product development, market planning and facility construction, APA Optics, Inc. is now a full developer, fabricator and marketer of sophisticated optoelectronic products.

Your Company set challenging goals for itself and has worked hard to accomplish them. First, APA wanted to create the most sophisticated products possible, make them proprietary and establish the facilities for product production. Then, the objective was to assemble the staff needed to fabricate and market these advanced products to

the fiber optics communications and optoelectronics industries. All of these objectives have been met. The challenge for APA now is to market aggressively and to ensure that our production capability is in line with anticipated demand.

APA Optics is now receiving orders for both of the major new products introduced before the end of fiscal 1998, the "ultra" DWDM modulator component and the Gallium Nitride-based Schottky UV detector. The detector is believed to be the first commercialized product ever to use Gallium Nitride as a base. APA is now bringing out its second GaN UV-detector, a device with performance that is far superior to any other UV detector in its class. The Company will utilize all of its patent-protected GaN technologies, developing additional products to meet the needs of industry. I see such product development activity as having vast overall potential for APA.

The initial orders for our new WDM modulator reinforce the future of this major product marketing area at APA Optics. The Company has taken this technology a step further, creating the "ultra" Dense Wavelength Division Multiplexed (DWDM) modulator. APA Optics has seized leadership with its leading position on high channel spacing and low insertion loss. These are two of the major considerations in designing and building fiber optics communications systems. These technological advantages augur well for the Company's marketing efforts. The product development focus is now on units with 16, 32 or even higher channel capacities.

In the manufacturing area, APA's new Aberdeen fabrication center is up to speed. This manufacturing center is operating smoothly and is ready to meet the production challenges of the future.

As I cautioned earlier, losses were to be anticipated in connection with the Company's move toward a product emphasis. I am pleased to report that APA Optics accomplished its key objectives in redirecting the Company while experiencing a loss of less than \$1 million. This is impressive, given the deliberate reduction in contract research activity. While the fiscal 1998 loss is not insignificant, it is understandable. The Company experienced the higher costs associated with staffing the Aberdeen facility and marketing efforts, but did not benefit from substantial production revenues. Losses can be anticipated until product sales and revenues rise to more satisfactory levels.

The APA management has strived mightily to turn the Company in a new and more profitable direction. Much has been accomplished, but the final pieces involve bringing our marketing plans to fruition and gaining substantial product orders. I anticipate improved financial performance in forthcoming quarters.

Thank you for your support during this transition. I believe the wisdom of these strategies will be demonstrated as APA heads to the new Millennium and beyond.

Sincerely,

Anil K. Jain

June 22, 1998

THE EVOLUTION OF "ULTRA" DENSE WAVELENGTH DIVISION
MULTIPLEXED TECHNOLOGY: A TALK WITH DR. TIM BOORD

Q: Please tell us about the research origins of wavelength division multiplexed technology (WDM) at APA Optics.

A: APA's WDM work began with a U.S. Navy research program where we had to identify an inexpensive way of providing laser sources for WDM use. So, initially, it started out with looking at just a single laser to obtain several wavelengths that could be used for WDM, but over the

years, it evolved into a passive device, where we were using many different lasers. This is the approach taken by the telecommunications companies, but they needed ways to essentially combine all these different lasers onto one fiber at the transmitter end and then, at the receiver end, separate them out, each wavelength on a different fiber. So, essentially there were several key aspects of this early work on the Navy device that were part of the approach to developing the commercial product we now have. As the work progressed, it focused more on the actual passive multiplexer and demultiplexer units.

Currently, we have three WDM patents, and a fourth one is pending. As we have modified, and improved, our basic design to meet the developing system requirements for implementing DWDM technology, APA's patents have been extended to cover the new designs.

Q: APA's WDM technology differs from that of most others in the industry. How does it work?

A: We use diffraction gratings, a very finely ruled substream with a large number of parallel, evenly spaced grooves incorporated in the surface. When certain light beams are directed on the grooved surface, light is scattered into several specific angular directions. Each wavelength is sent in a different direction.

Another approach used for WDM utilizes a very narrow band thin film filter. There are several companies offering a WDM product line based on the film filter approach. Reflectors fabricated in the core of an optical fiber are also being used to separate and combine several wavelength bands.

Q: You believe your technology has major advantages?

A: Yes. We have fabricated and demonstrated a DWDM which can separate or recombine narrow wavelength bands which are spaced in frequency by as little as 50 Gigahertz, which is a wavelength spacing of 4 Angstroms. The DWDM wavelength grid established by the telecommunications industry uses narrow wavelength bands separated in frequency by 100 GHz, which is a wavelength spacing of 8 Angstroms. The telecommunications industry is looking towards future use of 50 GHz channel spacing and APA has already demonstrated this capability. Channel spacings of 50 GHz would be difficult to achieve and implement with a thin film filter approach.

Q: Operationally, are there any limitations that arise from using the grating technology? Does it limit the type of material you can transmit on the channels?

A: No. Our DWDM is best suited for systems that use a consecutive series of equally spaced wavelengths in the standard wavelength grid, and this is the approach that has been requested by users of WDM.

Q: Where do you think WDM is now? What is the status of implementation?

A: One of the major long distance carriers has upgraded at least part of its telecommunications systems with DWDM capability within the last year. Based on the interest in DWDM at the 1998 Fiber Optics Components conference, I think more of the telecommunications industry is committed to upgrading the capacity of their systems through the use of DWDM.

Q: The old technology couldn't keep up?

A: There is a limit to how much you can increase the information carrying capacity of a fiber optic link by electronic multiplexing. As the light beam is modulated faster, signal degradation increases due to dispersion over long transmission distances.

With WDM, you can increase the number of wavelength bands from one to four, for example, and thereby increase the information carrying capacity by a factor of four. This is accomplished without the need to install new fiber or faster electronics.

Q: Where are you going now?

A: System designers for the telecommunications industry are requesting more optical wavelength channels, so we are working on extending our approach to implement a DWDM with 48 channels. Also, we have received requests for integration of the DWDM with couplers, to provide monitoring and control capabilities. We are also considering offering a wider range of components for fiber optic communications by using integrated optics technology. Initially, these

would be passive components. However, as the all optical systems comes closer to reality, APA will be a supplier of active components, as well.

Q: Will it ever slow down?

A: It doesn't appear so. As system designers push for optical fiber links which offer data, voice and video communication, the need for information carrying capacity will keep increasing. DWDM is an accepted method of meeting this requirement for greater information carrying capacity.

Q: How difficult is it to create this- is fabrication the challenge?

A: The DWDM requires high quality optical components and has very tight assembly tolerances. However, APA Optics has been in the business of fabricating high quality, high precision optical components and systems for over 15 years.

We currently are assembling the DWDM in a laboratory environment. But, we are working with a mechanical engineering consulting firm to ensure a package design which is both compatible with a more automated assembly process, and which is also more stable and reliable when exposed to anticipated environmental conditions.

W. Tim Boord Principal Investigator- APA Optics

Dr. Boord played a crucial role in developing APA's WDM modulator for fiber optic communications systems. He headed the U.S. Navy-funded phase two program for a prototype demonstration of the modulator for future commercialization, following the success of phase one.

Joining APA in 1984, Dr. Boord established its thin film coating design and fabrication capability and initiated the development of the integrated optic device design and fabrication program. Dr. Boord came to APA from Honeywell, Inc., where he was involved in R&D on solid state magnetic, optical and pressure sensors compatible with silicon integrated circuit processing. Earlier, he worked on thin film systems.

Dr. Boord holds Ph.D and masters degrees in Physics from Case Western Reserve University and did his undergraduate work at Case Institute of Technology. He holds four patents concerning thin film processes and optical and magnetic devices. Dr. Boord also is the co-author of several patents at APA.

ABERDEEN MANUFACTURING CENTER IS UP AND RUNNING

The 24,000 sq. ft. facility incorporates sophisticated equipment that can accommodate the microscopic tolerances and material layers used in photonics devices. The Aberdeen center also has a "clean room," which is supported by the most advanced air filtration and ventilating systems, together with laboratory and office space.

Currently, production at the Aberdeen facility is focused on the Company's Gallium Nitride ultraviolet detectors and wavelength division multiplexed component products.

Randy Bender, manager of the facility, said a strong team has been assembled in Aberdeen. In addition to the technical staff, Bender said "This plant was well-designed from the outset and that facilitates operations. I have been impressed by the performance of our systems."

Bender, who joined APA Optics in March, has extensive experience in manufacturing management. Earlier assignments included plant planning and management for Sheldahl, Inc. and Control Data Corporation.

Dr. Jain said the Company is pleased to have the facility up and running, and particularly to be a part of the Aberdeen community.

The facility was constructed with financial assistance provided by the Aberdeen Development Corporation and the State of South Dakota.

"The Aberdeen facility was designed to meet the most exacting standards for manufacturing and we expect it to play a key role in the growth of APA Optics," said Dr. Jain.

FOCUS ON DIFFERING BASE MATERIALS, RARE MINERALS, LEADS TO
EXCEPTIONAL NEW OPTOELECTRONICS PRODUCTS

A basic principle followed at APA Optics is to focus on research activities that offer the promise of marketable products within a foreseeable time period. For example, the Nitrides group at the Company is devoting its primary attention to identifying product ideas and devices that can be developed within three to six months. The goal is a three-month time span.

Typifying this approach is APA's work on Gallium Nitride devices, such as the Schottky ultraviolet detector introduced last year. That innovative device was based on a long period of research on the use of Gallium Nitride (GaN) as a substrate material. This brought special, and important, qualities to this UV detector, in that GaN as a base material helps provide far greater ability to ignore daylight and focus on ultraviolet light.

APA Optics is now introducing the second product in its Schottky UV detector line and others are in the pipeline. UV detectors are categorized by A, B and C classes, and the Company will cover the spectrum. The key objective is to get the maximum yield out of the GaN wafer. In addition, fabrication procedures are being modified to further improve performance. This is expected to lead to increases in responsivity of 60 to 70 percent more than previously available.

APA's president and chief executive officer, Anil K. Jain, said the Nitrides research group is now working on products to be used in flame sensing applications by integrating the GaN devices with transistors.

The Company is recognized worldwide as a leader in research on Nitride family materials. These include Aluminum Gallium Nitride (AlGaN) and Indium Gallium Nitride (InGaN). Dr. Qisheng Chen, other Ph.D.'s and the rest of the scientists on APA's Nitrides team are considered authorities in this area and they speak frequently before technical groups on such topics and are published regularly in scientific journals.

Management's Discussion and Analysis--Results of Operations:

Operating revenues for fiscal 1998 were \$2,190,637, a decrease of 21 percent from operating revenues of \$2,769,270 for fiscal 1997. This significant decrease is the result of decreased contract fees in fiscal 1998 (\$1,950,844) as compared to fiscal 1997 (\$2,581,005) associated with government contracts. It may be noted that the Company had record contract fees during fiscal 1997 as compared to prior fiscal years. For example, contract fees in fiscal year 1996 were \$2,205,318. Contract revenues are down for two reasons. First, the Company started to emphasize the product development, manufacturing and marketing of its technology based products. Second, there was a temporary hold by the government on one of its main contracts, dating back to November 10, 1997. This product emphasis has also affected the Company's backlog of research contracts. The Company's backlog of uncompleted contracts was down to \$1.2 million at March 31, 1998, as compared to \$3.2 million at March 31, 1997. APA's product development efforts resulted in the start of operations at its Aberdeen facility, with the manufacture of Gallium Nitride-based ultraviolet detectors. The Company currently employs 10 persons in its Aberdeen, South Dakota production facility. The Company has sold some test units, but has not yet recorded significant revenues from Aberdeen.

The Company is reporting a net loss of \$967,767 (\$.12 per share) for fiscal 1998, as compared to a net loss of \$11,023 (\$.00 per share) for fiscal 1997. The substantial increase in losses is due to the costs associated with the new production facility in Aberdeen, SD, and is reflected in the cost of sales figure, \$901,538 in fiscal year 1998, as compared to \$319,626 in fiscal year 1997. The Company also incurred significantly increased legal expenses in fiscal 1998, approximately \$198,000 as compared to approximately \$18,000 in fiscal 1997, due to certain litigation matters. As the government contract work continues to diminish,

production will need to pick up in order to sustain the revenue base. The Company anticipates these losses may continue through fiscal 1999, depending upon the marketing and manufacturing of ultraviolet detectors and other products.

Liquidity & Capital Resources:

The Company's cash balance at March 31, 1998 is \$5,184,215 compared to \$3,875,205 at March 31, 1997. The increase in cash is attributable primarily to a draw on the South Dakota Bond agreement. The Company used its working capital to finance the Aberdeen facility during the construction period and was subsequently reimbursed from the South Dakota bond funds. Also, warrants outstanding from the Company's 1995 private placement were exercised, netting the Company in excess of \$1.3 million. Most of the capital expenditures for fiscal year 1999 will be for equipment at the Aberdeen facility. The company will use the available funds on the South Dakota bond agreement and other debt agreements to finance the cost of approximately \$1 million. The Company believes it has sufficient cash reserves for operations through fiscal 1999.

Common Stock Information

Common Stock Prices

	FY '98	High	Low	FY'97	High	Low
1st Qtr	\$6.50	\$5.25		\$6.25	\$4.25	
2nd Qtr	6.63	5.38		6.75	5.00	
3rd Qtr	9.25	6.13		5.75	4.25	
4th Qtr	8.00	5.50		5.87	4.37	

The Common Stock of APA Optics, Inc. is listed on the quotation system of The NASDAQ Small-Cap Market under the symbol APAT. There were 372 shareholders of record on March 31, 1998. APA Optics, Inc. has not paid dividends on its common stock and does not anticipate doing so in the foreseeable future.

Balance Sheets

	March 31	
	1998	1997
Assets		
Current assets:		
Cash and cash equivalents	\$5,184,215	\$3,875,205
Accounts receivable	236,284	355,981
Inventories:		
Raw materials	11,965	1
5,666		
Work-in-process and finished goods	145,156	1
32,697		
Prepaid expenses	22,975	27,408
Bond reserve funds	131,667	70,000
Total current assets	5,732,262	4,476,957
Property, plant and equipment	2,702,887	2,107,755
Other assets:		
Bond reserve funds	653,458	2,233,362
Bond placement costs	260,012	308,012
Other	281,293	293,312
	1,194,763	2
,834,686		
Total assets	\$9,629,912	\$9,419,398

Liabilities and shareholders' equity

Current liabilities:

Accounts payable	\$ 36,960	\$ 59,210
Accrued expenses	123,437	118,216
Current maturities of long-term debt	226,385	158,021
Total current liabilities	386,782	335,447

Long-term debt 3,383,267 3,670,983

Shareholders' equity:

Undesignated shares; 5,000,000 shares authorized,
none issued

Common stock, \$.01 par value:

Authorized shares - 20,000,000
Issued and outstanding shares - 8,512,274 in 1998;
8,306,624 in 1997 85,123

83,066		
Additional paid-in capital	9,657,028	
8,244,423		
Accumulated deficit	(3,882,288)
(2,914,521)	
Total shareholders' equity	5,859,863	
5,412,968		

Total liabilities and shareholders' equity \$9,629,912
\$9,419,398

See accompanying notes.

Statement of Operations

	Year ended March 31	
	1998	1997
Revenues:		
Net sales	\$ 239,793	\$ 188,265
Contract fees	1,950,844	2,581,005
2,190,637	2,769,270	
Costs and expenses:		
Cost of sales	901,538	319,626
Cost of contract fees	1,430,578	1,609,574
Research and development	338,615	374,604
Selling, general and administrative	616,532	594,234
3,287,263	2,898,038	
Loss from operations	(1,096,626)	(128,768)
Interest income	310,925	274,976
Interest expense	(181,066)	(156,231)
Loss before income taxes	(966,767)	(10,023)
Income taxes	1,000	1,000
Net loss	\$ (967,767)	\$ (11,023)
Net loss per share		
Basic and diluted	\$	(.12)\$
- -		

Weighted average shares outstanding
Basic and diluted 8,376,661 8,192,879

See accompanying notes.

Statement of Shareholders' Equity

	Common Stock		Additional Paid-In Capital	Accumulated Deficit
	Shares	Amount		
Balance March 31, 1996	7,990,007	\$79,900	\$6,930,826	\$
(2,903,498)			
Stock options exercised, net	2,000		203,605	-
Warrants exercised	24,625	246	81,017	-
Shares issued under private stock offering to Aberdeen Group, net of issuance costs	289,992	2,900	1,197,100	-
Warrants issued for services in connection with bond financing	-	-	-31,875	-
Net loss	-	-	-	(11,023)
Balance March 31, 1997	8,306,624	\$83,066	\$8,244,423	(
2,914,521)			
Stock options exercised, net	3,500		357,871	-
Warrants exercised	202,150	2,022	1,343,861	-
Warrants issued in lieu of debt service payments	-	-	60,873	-
Net loss	-	-	-	(967,767)
Balance March 31, 1998	8,512,274	\$85,123	\$9,657,028	\$
(3,882,288)			

See accompanying notes.

Statement of Cash Flows

	Year ended March 31	
	1998	1997
Operating activities		
Net loss	\$ (967,767)	\$ (11,023)
Adjustments to reconcile net loss to net cash (used in) provided by operating activities:		
Depreciation and amortization	426,362	457,173
Changes in operating assets and liabilities:		

Accounts receivable	119,697	50,871
Inventories	(8,758)	(17,564)
Costs in excess of billings on research contracts	-	-
210,658		
Prepaid expenses and other assets	(31,548)	(26,921)
Accounts payable and accrued expenses	(17,029)	()
26,695		
Net cash (used in) provided by operating activities	(479,043)	
636,499		
Investing activities		
Purchases of property and equipment	(925,494)	()
1,347,358)		
Net cash used in investing activities	(925,494)	(1,347,358)
Financing activities		
Proceeds from sales of Common Stock	1,353,789	1,284,888
Long-term debt proceeds	-	3,520,000
Repayment of long-term debt	(158,479)	(135,996)
Bond placement costs	-	(253,720)
Bond reserve funds	(1,518,237)	(2,085,417)
Net cash provided by financing activities	2,713,547	2
,329,755		
Increase in cash and cash equivalents	1,309,010	1
,618,896		
Cash and cash equivalents at beginning of year	3,875,205	
2,256,309		
Cash and cash equivalents at end of year	\$5,184,215	\$
3,875,205		

Supplemental disclosures of noncash investing and financing activities

Warrants issued for services in connection with bond financing \$ - \$ 31,875

Warrants issued in lieu of debt service payments 60,873 -

See accompanying notes.

Notes to Financial Statements

1. Summary of Significant Accounting Policies

Nature of Business APA Optics, Inc. (the "Company") is engaged in the business of developing, designing and fabricating optical components and optical systems for laser and other industrial applications.

Revenue Recognition Revenue on contract fees is recorded on the percentage of completion method of accounting for long-term government contracts. A portion of the total contract price is recognized on the basis of contract costs incurred to date as compared to the expected total cost of the contract. Contract costs include direct materials, labor and manufacturing overhead. Estimated losses on uncompleted contracts are recorded in their entirety in the period in which they are determined.

Cash Equivalents The Company considers all highly liquid investments with a maturity of three months or less when purchased to be cash equivalents. Investments classified as cash equivalents consist primarily of certificates of deposit. The market value of investments is based on quoted market prices which approximates cost.

1. Summary of Significant Accounting Policies (continued)

Inventories Inventories are stated at the lower of cost or market. Cost is determined by the first-in, first-out (FIFO) method for raw materials, actual cost for direct labor and average cost for factory overhead in work in process.

Property and Equipment Property and equipment are stated at cost. Depreciation is provided on the straight-line method over the following estimated useful lives of the assets:

	Years
Building	20
Manufacturing equipment	7 - 10
Tools	3 - 7
Office equipment	5 - 10
Leasehold improvements	15

Bond Placement Costs Bond placement costs are amortized over 5 - 8 years.

Use of Estimates The preparation of financial statements in conformity with generally accepted accounting principles requires management to make estimates and assumptions that affect the amounts reported in the financial statements and accompanying notes. Actual results differ from those estimates.

Income Taxes The Company accounts for income taxes using the liability method. Deferred tax assets and liabilities are recognized for the future tax consequences attributable to temporary differences between the financial statement carrying amounts of assets and liabilities and their respective tax basis.

Per Share Data The Company has adopted Financial Accounting Standards Board Statement No. 128, "Earnings Per Share." Statement 128 replaced the calculation of primary and fully diluted earnings per share with basic and diluted earnings per share. Unlike primary earnings per share, basic earnings per share excludes any dilutive effects of options, warrants and convertible securities. Diluted earnings per share is very similar to the previously reported fully diluted earnings per share. All earnings per share amounts for all periods have been presented and, where appropriate, restated to conform to the Statement 128 requirements.

Impairment of Long-Lived Assets The Company records losses on long-lived assets in operations when indicators of impairment are present and the undiscounted cash flows estimated to be generated by those assets are less than the assets' carrying amount.

2. Accounts Receivable Accounts receivable includes \$34,907 billed under retainage provisions of government contracts in 1998 (\$40,309 in 1997).

3. Property, Plant and Equipment Property and equipment consists of the following:

	March 31	
	1998	1997
Land	\$ 60,000	\$ 60,000
Building	1,679,424	1,217,599
Manufacturing equipment	3,665,116	3,218,627
Tools	88,092	88,092
Office equipment	186,621	185,448
Leasehold improvements	536,447	536,447
	6,215,700	5,306,213
Less accumulated depreciation	3,512,813	3,198,458
	\$2,702,887	\$2,107,755

4. Other Assets Other assets include \$221,000 at March 31, 1998 and 1997 representing premiums paid by the company on a life insurance policy owned by the Company's president.

5. Long-Term Debt Long-term debt consists of the following:

	March 31	
	1998	1997
7% Minnesota Agricultural and Economic Development Board Bond, due in increasing serial maturities through fiscal year ending March 31, 2000, secured by manufacturing equipment	\$ 240,000	\$345,000
Debt associated with the production facility in Aberdeen, South Dakota	3,369,652	3,484,004
	3,609,652	3,829,004
Less current maturities	226,385	158,021
	\$3,383,267	\$3,670,983

In December 1989, the Company entered into a loan agreement with the Minnesota Agricultural and Economic Development Board to provide financing for the expansion of manufacturing facilities. At March 31, 1998 and 1997, the Company had on deposit with trustees \$211,417 and \$204,750 in reserve for future payments on these bonds of which \$76,667 and \$70,000 is held in escrow for the payment of current bond maturities. The loan agreement requires the Company to maintain certain minimum levels of net worth and

to maintain certain income to outstanding debt ratios. The Company was out of compliance with these covenants in fiscal 1998. Such noncompliance does not constitute an event of default, but triggers further covenants under the loan agreement with which the Company is in compliance at March 31, 1998. The carrying value of the bonds approximates market value at March 31, 1998 and 1997.

In June 1996, the Company began construction of its new production facility in Aberdeen, South Dakota to fabricate wavelength division multiplexed modulators. As part of its financing of the facility, the Company has received economic assistance from the State of South Dakota Governor's Office of Economic Development and the Aberdeen Development Corporation (the parties) as follows:

Proceeds:	
Bond financing for building construction and equipment	
\$1,895,000	
Low interest loans	875,000
Forgivable loans	750,000
Equity investment of 288,992 shares of common stock	
1,200,000	
	\$4,720,000

The following is a summary of the outstanding debt at March 31 related to the Aberdeen facility:

	1998	1997
South Dakota Governor's Office of Economic Development and the Aberdeen Development Corporation Bond, 5% to 6.75% due in various installments through 2016	\$ 1,895,000	
1,895,000		
Low interest loans, 0% to 3% due in various installments through 2016	785,525	839,004
Forgivable loans, 3% due in various installments through 2003	689,127	750,000
\$3,369,652	\$3,484,004	

5. Long-Term Debt (continued)

The forgivable loans are contingent upon employment levels at the facility meeting preset criteria. In exchange for any loans forgiven, the Company will issue warrants to purchase common stock of the Company based on the number of job credits earned by the Company in the twelve months divided by the exercise price. The exercise price shall be \$4.00 per share for warrants issued as of June 23, 1997 and shall increase \$1.00 per year thereafter through June 23, 2001. As of March 31, 1998, 12,175 warrants have been issued for loans forgiven totaling \$60,873. No warrants had been issued as of March 31, 1997. The carrying value of the low interest loans and forgivable loans approximates market at March 31, 1998 and 1997.

At March 31, 1998, the Company had on deposit with trustees \$573,708 in reserve funds for current bond maturities of which \$55,000 is held in escrow. At March 31, 1997, the Company had on deposit with trustees \$2,098,612 in funds available for project costs. These funds are included in bond reserve funds in the accompanying balance sheets. The loan agreement requires the Company to maintain certain minimum levels of net worth and to maintain certain income to outstanding debt ratios. The Company was out of compliance with these covenants in fiscal 1998. Such noncompliance does not constitute an event of default, but triggers further covenants under the loan agreement with which the Company is in compliance at March 31, 1998. The carrying value of the bonds approximates market value at March 31, 1998 and 1997.

In addition, the Company has available \$750,000 in promissory notes to be used for the purchase of equipment in the new facility. There were no outstanding borrowings under the notes at March 31, 1998 and 1997.

As partial payment of expenses related to the Aberdeen financing, the Company issued warrants to purchase 31,875 shares of the Company's common stock at an exercise price of \$4.00 per share. The warrants expire in September 2000. The value assigned to the warrants of \$31,875 has been

capitalized as bond placement costs and is amortized over the life of the loan agreement.

As part of the Company's plan to construct this production facility, the city of Aberdeen, South Dakota gave the Company land with an approximate fair market value of \$250,000. The gift was contingent upon the Company staying in the new building through June 23, 2002.

Interest paid during fiscal year 1998 and 1997 was \$181,066 and \$156,231, respectively.

Maturities of long-term debt are as follows (assuming no debt is forgiven): 1999 - \$226,385; 2000 - \$256,874; 2001 - \$138,525; 2002 - \$376,501; 2003 - \$576,354; thereafter - \$2,035,013.

6. Income Taxes As of March 31, 1998, the Company has net operating loss carryovers for federal income tax purposes of approximately \$4,100,000 which expire in fiscal years 2001 to 2012 and \$43,000 in research and development credits which can be used to offset federal income taxes. Credits will expire in fiscal years 2000 to 2005.

Deferred income taxes reflect the net tax effects of temporary differences between the carrying amounts used for financial reporting purposes and the amounts used for income tax purposes. Significant components of the Company's deferred taxes are as follows:

	March 31	
	1998	1997
Net operating losses	\$1,405,000	\$1,037,000
Depreciation	11,000	54,000
Research and development credits	43,000	43,000
Other	24,000	21,000
Total deferred tax asset	1,483,000	1,155,000
Less valuation allowance	(1,483,000)	(1,155,000)
Net deferred taxes	\$ -	\$ -

Income tax expense consists of state taxes in 1998 and 1997.

7. Shareholders' Equity The Board of Directors may by resolution establish from the undesignated shares different classes or series of shares and may fix the relative rights and preferences of shares in any class or series.

8. Stock Options and Warrants In fiscal years 1998 and 1997, certain shareholders tendered 2,500 and 2,000 shares, respectively, of common stock as substantial payment for 6,000 and 4,000 shares, respectively, purchased upon exercise of their stock options.

Option activity is summarized as follows:

Shares Available for Grant	Weighted Average Options Outstanding	Average Exercise Price Per Share
Balance March 31, 1996	236,338	10,000
\$ 3.94		
Additional shares reserved	500,000	-
-		
Granted	(75,000)	75,000
5.19		
Exercised	-	(4,000)
3.50		
Balance March 31, 1997	661,338	81,000
5.20		
Additional shares reserved	500,000	-
-		
Granted	(25,000)	25,000
6.19		
Exercised	-	(6,000)
4.22		
Canceled	70,000	(70,000)
5.19		
Balance March 31, 1998	1,206,338	30,000
\$ 6.10		

The Company has an incentive and non-qualified stock option plan for employees and has reserved an additional 500,000 shares for option grants at management's discretion.

The number of shares exercisable at March 31, 1998 and 1997

was 5,000 and 6,000, respectively, at a weighted average exercise price of \$5.65 and \$4.88 per share, respectively.

The weighted average fair value of options granted in 1998 and 1997 was \$2.83 and \$2.99 per share, respectively. The exercise price of options outstanding at March 31, 1998 ranged from \$5.65 to \$6.50 per share.

Pro forma information regarding net loss and net loss per share is required by Statement 123, and has been determined as if the Company had accounted for its employee stock options under the fair value method of Statement 123. The fair value for these options was estimated at the date of grant using a Black-Scholes option pricing model with the following weighted-average assumptions for 1998 and 1997, respectively: risk-free interest rates ranging from 5.61% to 6.54%, volatility factor of the expected market price of the Company's Common Stock of .44 and .60 and a weighted-average expected life of the options of 5 years.

The Black-Scholes option valuation model was developed for use in estimating the fair value of traded options which have no vesting restrictions and are fully transferable. In addition, option valuation models require the input of highly subjective assumptions. Because the Company's employee stock options have characteristics significantly different from those of traded options, and because changes in the subjective input assumptions can materially affect the fair value statement, in management's opinion, the existing models do not necessarily provide a reliable single measure of the fair value of its employee stock options.

8. Stock Options and Warrants (continued)

For purposes of pro forma disclosures, the estimated fair value of the options is amortized to expense over the options' vesting period. The Company's pro forma information is as follows:

1998	1997
Pro forma net loss \$(16,249)	\$(991,568)
Pro forma net loss per common share - basic and diluted \$(.12)	\$ -

These pro forma amounts may not be indicative of future years' amounts since the Statement provides for a phase-in of option values beginning with those granted in fiscal 1996.

The following is a table of the warrants to purchase shares of the Company's Common Stock:

	Warrants Outstanding	Exercise Price per Share	Expiration Date
Balance at March 31, 1996	415,000		\$3.30 - \$6.75
1996 - 2001			
Granted	31,875	4.00	2000
Exercised	(24,625)	3.30	2001
Expired	(20,375)	3.30	1996
Balance at March 31, 1997	401,875		3.30 - 6.75
1999 - 2001			
Granted	12,175	5.00	2001
Exercised	(202,150)	3.30 - 6.75	1999 - 2001
Expired	(103,250)	6.75	1997
Balance at March 31, 1998	108,650		3.30 - 6.95
1999 - 2001			

9. Commitments The Company leases office and manufacturing facilities from a partnership whose two partners are major shareholders and officers of the Company. The lease agreement, classified as an operating lease, expires November 30, 1999 and provides for periodic increases of the rental rate based on increases in the consumer price index. Future minimum lease obligations under the lease as of March 31, 1998 are as follows:

Year ending March 31:		
1999	\$116,000	2000

77,000

\$193,000

Rental expense was \$118,000 during each of the fiscal years ended March 31, 1998 and 1997, all of which was paid to the partnership.

10. Major Customer Several operating agencies of the U.S. Government account for more than 10% of the Company's net sales and contract fees. Total revenue from the agencies was \$1,950,844 in 1998 and \$2,581,005 in 1997 as follows:

	1998	1997
Air Force		20% 42%
Army 25		22
Navy 38		36
ARPA 17		-
Total 100		%100 %

REPORT OF INDEPENDENT AUDITORS

The Board of Directors and Shareholders
APA Optics, Inc.

We have audited the accompanying balance sheets of APA Optics, Inc. as of March 31, 1998 and 1997, and the related statements of operations, shareholders' equity and cash flows for the years then ended. These financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on these financial statements based on our audits.

We conducted our audits in accordance with generally accepted auditing standards. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation. We believe that our audits provide a reasonable basis for our opinion.

In our opinion, the financial statements referred to above present fairly, in all material respects, the financial position of APA Optics, Inc. at March 31, 1998 and 1997, and the results of its operations and its cash flows for the years then ended in conformity with generally accepted accounting principles.

Minneapolis, Minnesota
April 29, 1998
Ernst & Young LLP

Annual Meeting The Annual Meeting of Shareholders will be held on August 19, 1998 at 3:30 PM at the Sheraton Minneapolis Metrodome, 1330 Industrial Blvd., Minneapolis, Minn.

Availability of Form 10-KSB Shareholders may obtain, exclusive of exhibits, a copy of the annual report to the Securities and Exchange Commission (Form 10-KSB) for the year ended March 31, 1998 by writing to the Company, Attention: Corporate Secretary, APA Optics, 2950 84th Lane, Blaine, MN 55449.

Stock Transfer Agent Norwest Bank, 161 N. Concord

Exchange, So. St. Paul, MN 55075

Corporate Officers

Anil K. Jain, President and Treasurer

Kenneth A. Olsen, Vice President and Secretary

Randal J. Becker, Principal Accounting Officer

Counsel: Moss & Barnett, P. A.

Minneapolis, Minnesota

Independent Auditors: Ernst & Young, LLP

Minneapolis, Minnesota

Investor Relations: The Wallace Group,

Eagan, Minnesota